

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method of obtaining a quality image by the use of at least one biometric capacitive fingerprint sensor having a plurality of capacitive sensor cells arranged underneath a surface of dielectric material and each comprising at least one capacitor plate, and a plurality of registers, ~~characterized in that~~ wherein it comprises the step of modulating any electromagnetic field generated at each capacitor plate in accordance with worst cleaning conditions of said surface of dielectric material, thereby obtaining a quality image with a correct contrast between ridge and valley of a detected fingerprint.

2. (Currently Amended) A method as claimed in ~~claim 2, characterized in that~~ claim 1, wherein the said modulation step comprises

- executing a calibration procedure by means of a capacitative fingerprint sensor set to simulate the worst operating conditions, said calibration procedure being designed to obtain correct values of electric charge intensity for each sensor cell corresponding to one image pixel under said worst cleaning conditions, thereby ensuring good contrast between ridges and valleys in a fingerprint image,

- storing said correct values in a memory system, and

- uploading calibration data in said sensor registers at each start of said fingerprint sensor.

3. (Currently Amended) A method as claimed in claim 2, ~~characterized in that~~ wherein the said memory system comprises a flash memory controlled by a c. p. u.

4. (Currently Amended) A method as claimed in claim 2, ~~characterized in that~~ wherein the said memory system comprises a hard disk in a PC.

5. (Currently Amended) A method as claimed in claim 2, ~~characterized in that~~ wherein said memory system comprises a software source code.

6. (Currently Amended) A method as claimed in ~~any preceding claim 2 to 7,~~ characterized in that claim 2, wherein the said calibration procedure is carried out according to a software wherein

- each capacitor plate charge intensity is associated with a grey level of each image pixel,
- and
- the said charge intensity of each capacitor plate is modulated and adjusted to obtain a correct average grey level of each image pixel..

7. (Currently Amended) A method as claimed in ~~claim 7, characterized in that~~ claim 6, wherein the said charge intensity is modulated and adjusted according to correction factors.

8. (Currently Amended) A method as claimed in claim ~~6 or 7, characterized in that~~ claim 2, wherein the said calibration procedure is carried out according to a software, and

- each capacitor plate charge intensity is associated with a grey level of each image pixel,
- and

- the said charge intensity of each capacitor plate is modulated and adjusted to obtain a correct average grey level of each image pixel, and

wherein the said calibration procedure comprises

- setting the said dielectric surface so as to simulate worst cleaning conditions,
- acquisition of correct or adjusted values of charge intensity for each capacitor plate suitable for keeping a good contrast between ridges and valleys whereby obtaining a quality fingerprint image, and
- registration of the said adjusted values in a suitable memory system or software source code.

9. (Currently Amended) A method as claimed in claim 8, ~~characterized in that~~ wherein the said adjusted values are uploaded into said sensor registries at each start of the fingerprint sensor.

10. (Currently Amended) A biometric integrated system including a biometric database, at least one biometric capacitive fingerprint sensor having a plurality of capacitive sensor cells arranged underneath a surface of dielectric material and each comprising at least one capacitor plate, ~~characterized in that~~ wherein each biometric fingerprint sensor (11) comprises a protection ~~case (2),~~ case, a swinging frame (9) supported in said protection case (2) and arranged to be angularly moved between an inoperative stand-by position and an operating position in which a fingerprint sensor (11) is facing a user's finger

11. (Currently Amended) A biometric integrated system as claimed in claim 10, ~~characterized in that~~ wherein the said swinging frame (9) is mounted for rotation in the said protection case (2) about a transverse pivot ~~pin (10); pin.~~

12. (Currently Amended) A biometric integrated system ~~as claimed~~ as claimed in claim 11, ~~characterized in that~~ wherein the said protection case has a window (8) and the said swinging frame is shaped as a drum sector and has a pair of side ~~walls (9a, 9b);~~ walls, a bridging wall (9c) connecting the said side walls (9a, 9b) and designed to substantially close the said window (8) when the said swinging frame (9) is in its inoperative stand-by position, and a transverse plane wall (9d) provided with an end wing or tab (12) and arranged to locate a capacitive fingerprint sensor (11) having a covering or protection ~~surface (11a)~~ surface of a dielectric material.

13. (Currently Amended) A biometric integrated system as claimed in claim 12, ~~characterized in that it comprises~~ comprising resilient means arranged to urge the said swinging frame (9) to its inoperative position with its protection ~~surface (11a)~~ surface facing towards the inside of said ~~case (2);~~ case.

14. (Currently Amended) A biometric integrated system as claimed in claim 12 ~~or 13;~~ characterized in that it comprises comprising an access ~~area (AA)~~ area of a conductive material provided on said case (2) in a position close to the said ~~window (8);~~ window, and upstream of said end ~~tab (12);~~ tab.

15. (Currently Amended) A biometric integrated system as claimed in ~~any preceding claim 10 to 14, characterized in that it comprises~~ claim 10, comprising an interface card means (13) arranged to connect the said biometric data base and each capacitative fingerprint sensor (11): sensor.

16. (Currently Amended) A biometric integrated system as claimed in ~~claim 14 or 15, characterized in that it comprises~~ 12, comprising an access area of a conductive material provided on said case in a position close to the said window, and upstream of said end tab and at least one electric resistor (14) located in said protection case (2) and arranged to keep the said integrated system above a predetermined temperature threshold.

17. (Currently Amended) A biometric integrated system as claimed in ~~any preceding claim 14 to 16, characterized in that it comprises~~ claim 12, comprising an access area of a conductive material provided on said case in a position close to the said window, and upstream of said end tab, and an electrically operated locking device (15) for said swinging frame (9): frame.

18. (Currently Amended) A biometric integrated system as claimed in ~~any preceding claim 14 to 17, characterized in that it comprises~~ claim 12, comprising an access area of a conductive material provided on said case in a position close to the said window, and upstream of said end tab, and a smart card reading means (16): means.

19. (Currently Amended) A biometric integrated system as claimed in ~~any preceding claim 14 to 18, characterized in that it comprises a telecamera (17);~~ claim 12, comprising an access area of a conductive material provided on said case in a position close to the said window, and upstream of said end tab, and a telecamera.

20. (Currently Amended) A biometric integrated system as claimed in ~~any preceding claim 14 to 19, characterized in that it comprises~~ claim 12, comprising an access area of a conductive material provided on said case in a position close to the said window, and upstream of said end tab, and a radio transponder sensor means(18); means.

21. (Currently Amended) A biometric integrated system as claimed in ~~any preceding claim 15 to 20, characterized in that~~ claim 10, comprising an interface card means arranged to connect the said biometric data base and each capacitative fingerpring sensor, and wherein the said interface card means (13) includes a ground connection ESD (19), a cable (20) ESD, a cable connecting said ground connection to the said end tab (12), said wall (9d) tab, said wall and said access area(AA); area, if any, and a start switch (21) arranged to start a routine of a respective fingerprint sensor (11) when the said swinging frame (9) is angularly moved to its operative position.

22. (Currently Amended) A biometric integrated system as claimed in claim 21, ~~characterized in that it comprises~~ comprising at least one alarm means (22); means.

23. (Currently Amended) A biometric integrated system as claimed in claim 22, ~~characterized in that it comprises~~ comprising at least one serial connection (23) to the said capacitive fingerprint sensor (11) through a cable (24) and serial ~~connection (23)~~; connection.

24. (Currently Amended) A biometric integrated system as claimed in ~~any preceding claim 10 to 23, characterized in that it comprises~~ claim 10, comprising a c. p. u. (44), u., a display ~~device (42)~~; device, at least one RAM ~~memory (41)~~; memory, at least one FLASH memory (40) connected to the said c. p. u. (44), u., and a relay ~~means (49)~~; means.

25. (Currently Amended) A biometric integrated system as claimed in claim 24, ~~characterized in that it comprises~~ comprising at least one keyboard (43); keyboard.

26. (Currently Amended) A biometric integrated system as claimed in ~~any preceding claim 24 or 25, characterized in that it comprises~~ claim 24, comprising at least one luminous led (34) in the said swinging frame (9) and a speaker means (35) designed to instruct the user while carrying ~~our~~ out an identification procedure.

27. (Currently Amended) A biometric integrated system as claimed in ~~any preceding claim 24 to 26, characterized in that it comprises~~ claim 24, comprising a wireless ~~module (1a)~~ module for interfacing each fingerprint sensor (11) to the said c. p. u. (44) through antenna means (29).

28. (Currently Amended) A biometric integrated system as claimed in ~~any preceding claim 10 to 27~~, claim 10, when used for controlling closing and opening of a door (56) provided with an electrically operated locking means (57) and mounted in ~~a access wall (55)~~: an access wall.

29. (Currently Amended) A biometric integrated system as claimed in ~~claim 28~~, ~~characterized in that it comprises~~ claim 28, comprising a first fingerprint sensor (41) arranged on one side of the said access wall (55) and a second ~~fingerprint (1-b)~~ fingerprint arranged on the other side, the said locking means (57) being electrically connected to a relay (49) controlled by said c. p. u. (44).